Red River Sport Fish Studies

Introduction

The Red River between Lockport and Lake Winnipeg is less than a one hour drive from the largest population centre in Manitoba, and supports about 9% of total angling in the province, making it our largest single sport fishery. It generates about $ 10 million annually in business in the area. The stocks of large channel catfish and walleye in the area support world class trophy fishing. Information was needed on the biology and status of these fish stocks and angling effort and catch from the lower Red River to maintain a continuing, healthy fishery in the area.

Fish Futures' first and continuing major project has been to access public and private funding to support these studies. From 1987 to now, Fish Futures, Inc. has raised a total of $ 57,293 for the Red River Study in addition to $ 25,000 from the Manitoba Department of Natural Resources. The result has been the most comprehensive body of information on Red River fish stocks and sport fishing ever assembled. Results up to now have been used directly in making angling regulations for the area, in developing policy for dredging and river channel maintenance and in preventing fish mortality due to warm water outfall from a power plant. The findings also point to areas of future concern in managing the fishery and to areas where still more information will be needed.

Fish Biology

Walleye

Walleye have a spring spawning migration into the river, and spawners have been found between Selkirk and the Lockport Dam. The extent and success of this spawning remain unknown. These walleyes have left the river by late May. In late September or October, walleyes re-enter the river on a feeding migration, which is the basis of the fall and winter walleye fishery. The fall migration has been somewhat smaller than normal and delayed in timing in 1988 and 1989. At the same time, there has been a combination of low river flow, dredging activity in the river and at its mouth, and variable levels of commercial fishing at the river mouth. Fish movement into the river doesn't relate in a simple way to any of these factors. More study is needed to determine the relationship of fish movement to other factors.

So far, tagged walleye have not been found upstream from Lockport.

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Channel Catfish

Large channel catfish also move into the river in early spring, but then start an aggressive feeding period that lasts to late June. The now nearly mature channel catfish move down toward the Netley-Libau marsh area at the river mouth ... a movement which has been tracked with radio-tagged catfish as well as showing up in tag recoveries, experimental net catches and angler catches. In August, 1989 hatching channel catfish were first found in Netley Marsh. Again, the extent and importance of catfish spawning in the Netley-Libau Marsh area is not known, but use of the area by spawning channel catfish must now be considered as a factor in any proposed use of the area.

Juvenile and smaller adult catfish are abundant in the lower Red River, as shown by experimental netting, but are even more abundant upstream in both the Red and Assiniboine rivers. Yearling and hatching channel catfish have also been taken in the Red River up to Letellier, and in the Assiniboine up to Norquay Provincial Park, west of Winnipeg. Three large adults tagged below Lockport, out of a total of 28 which had been at large for a year before recapture, were caught between Pembina and Drayton, N.D. This suggests that the channel catfish in the Red River and southern Lake Winnipeg, and probably also including the Assiniboine River, are one population. Any new barriers to fish movement on these rivers would cut off habitat and probably cause catfish to disappear upstream of the barriers.

This study has yielded some of the first age and growth information anywhere on large channel catfish. The oldest and largest channel catfish reported in a study of Upper Mississippi fish was 12 years old and 5.5 kg in weight. In the Red River studies, the average age of Master Angler channel catfish was 17 years, with a mean length of 82 cm and mean weight of 9 kg. In 1987, the angler catch was mostly 14 to 18 year old fish and in 1989, it was 16 to 20 year olds. The oldest fish so far seen was 22 years. Channel catfish in the Red River first spawn at a length of about 60 cm, which corresponds to an age of 10-11 years. These are old, slow growing fish and the reduction of the catch limit to one fish over 85 cm killed per year was done to help assure that good numbers of trophy catfish would continue to exist.

No other channel catfish population has fish this old, averages this large in size, or ranges over as big a stretch of lake and river unimpeded by barriers. This is probably the last essentially pristine channel catfish population in existence as well as being the basis of a unique and world-class trophy fishery. For all of these reasons, it merits continuing study and all the protection it can be given.

Angling Survey

Creel census studies were done on the lower Red River in 1987, 1988 and 1989. Analysis of this information isn't complete, but it shows some interesting trends. In general, angler catches are highest in the spring (all species) and fall (mainly sauger, walleye and

some catfish). Lowest total catches are in July and early August. There has been a drop in total catch each year since 1987. These have also been very dry years, with low river flows, especially in the fall. The factors which affect fish entering the river from Lake Winnipeg are complex and not understood. In addition, other factors, such as turbidity and large disturbances like channel dredging seem to reduce angler success even with good numbers of fish in the river, as shown by experimental netting. This has led to recommendations to the Department of Public Works regarding scheduling of dredging. More needs to be learned, but D.P.W. has been cooperative with efforts to make dredging and angling more compatible.

An encouraging trend from the creel census has been the steady increase in numbers of fish of all species released over the last three years. As more and more anglers adopt the catch-release ethic, the future of these unique fish stocks becomes a little more certain.

Future Directions

Of the areas which aren't understood yet, the following warrant high priority for more work.

1. Use of the Netley-Libau Marshes by Spawning Channel Catfish

Channel catfish spawning in the Netley-Libau Marshes is known, but its extent and importance are not known. Significant channel catfish spawning in the Netley-Libau marshes would affect any consideration of development or management of these marshes. If funding is available this year, a study of catfish spawning in this area will be started. Preliminary results should be available after the first year, but two or three years would be needed to define spawning areas, evaluate success and develop management recommendations.

2. Walleye Spawning in the Lower Red River

The section of the Red River between Lockport and Selkirk has large numbers of spawning walleyes each spring. Much of the bottom in this area is limestone bedrock, with cobble, rubble and boulders. While walleye undoubtedly spawn there, the success rate is not known. It may be that the clean, rocky bottom, doesn't provide enough shelter to protect the eggs from scour and predators. Study in this area should define spawning areas and evaluate hatching success. The findings would be critical in regulating timing of channel dredging and location of areas in which to dump dredging spoil. They may also show how walleye spawning in the area could be enhanced. One or two years of study should give sufficient information for management and enhancement decisions.

3. Continuation of Walleye and Channel Catfish Tagging

This could be done in conjunction with other operations and also use volunteer help from anglers and guides. Channel catfish move throughout the Red-Assiniboine-Lake Winnipeg system, seemingly limited

only by artificial barriers. The upstream areas seem to be important as rearing areas for young fish. So far, widely travelling walleye have not been found. Knowing movement patterns will be important in determining the need for fish passage to be built into check dams and diversions which may be built in the future.

4. Study of factors affecting movement of fish from Lake Winnipeg into the Red River

This could be done along with Netley-Libau Marsh studies. Since several variable factors probably interact in a complex way, two or more seasons of sampling at the river mouth may be needed to see enough combinations of variables to develop a consistent pattern.